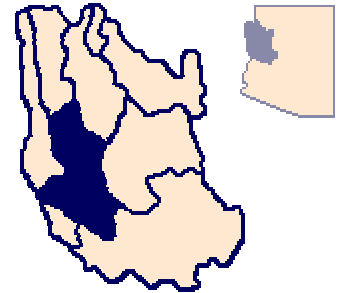


SACRAMENTO VALLEY BASIN

The Sacramento Valley basin covers about 1,400 square miles in western Arizona (Figure 13). The entire basin falls within the Basin and Range province. The basin trends in a north-south direction and is bounded on the west by the Black Mountains, on the southwest by the Mohave Mountains, and on the east by the Cerbat and Hualapai Mountains. Elevations range from 8,417 feet above mean sea level at Hualapai Peak to about 500 feet above mean sea level where the Sacramento Wash joins the Colorado River near Topock.



The older alluvium is the principal aquifer in the Sacramento Valley basin. Unconfined conditions are predominant in the aquifer which has an approximate areal extent of 500 square miles. The recoverable groundwater in storage to 1,200 feet is estimated to be 7 million acre-feet (Arizona Department of Water Resources, 1988). Depth to water ranges from over 1,000 feet below land surface in the northern part of the basin north of Highway 68 to less than 100 feet below land surface where the Sacramento Wash enters the Colorado River valley (Rascona, 1991). Saturated thicknesses ranged from 0 to 600 feet (Arizona Department of Water Resources, 1988).

Groundwater declines have occurred in the former Duval Corporation well field south of Highway 68. Now owned by Cyprus Metals Company, this well field exhibits average groundwater level declines of 0.8 feet per year (Arizona Department of Water Resources, 1994). In the Golden Valley area, north of Highway 68, groundwater levels declined 26 feet (an average of 1.2 feet per year) during the period 1979 to 1991. These declines are due to groundwater withdrawals associated with the steady increase of population and the Cyprus Metals Company well field to the south. In 1990, about 370 acre-feet of groundwater was withdrawn from this area north of Highway 68. Little to no water level decline has been recorded in the remainder of the basin (Rascona, 1991; Schmidt and Associates, 1993).

The groundwater in the Sacramento Valley basin generally is of good chemical quality. However, the groundwater located along the base of the mountain ranges tends to have a high mineral content. Total dissolved solids in the range of 1,400 to 2,400 milligrams per liter were reported in samples from areas in and near the Cerbat Mountains (Gillespie and Bentley, 1971). All other chemical constituents within the water are within drinking water standards.

The amount of groundwater pumped from the aquifers has varied over the years. It has ranged from 6,000 acre-feet per year from 1964-1980 to about 2,000 acre-feet per year from 1981-1986 (Steve Rascona, personal commun., 1991). The decline in water use represents the reduction in mining activity at the Mineral Park Mine in the 1980's. Cyprus Metals Company acquired the Mineral Park Mine from the Duval Corporation in 1986; annual groundwater pumpage has ranged from 400 acre-feet in 1986 to 600 acre-feet in 1990. Although the open pit copper-molybdenum mine and concentrator were on standby in 1989, the precipitation plant has begun operating (Arizona Department of Mines and Mineral Resources, 1988). Water use is expected to increase as the mine becomes more active. Cyprus Metals Company owns the five former Duval wells which have yields of up to 1,000 gallons per minute. Residential water use has been increasing steadily with the population growth in the Golden Valley area. Most wells in the basin are low yield stock and domestic wells. No irrigation wells are present.

The City of Kingman is the main population center in the Sacramento Valley basin. A small portion of the City is on a ridge of fractured and faulted volcanic rocks separating Sacramento Valley and Hualapai Valley basins and a large portion is on the alluvial fill of Hualapai Valley basin. Kingman has developed a well field at the southern end of the Hualapai Valley basin to provide a dependable, long-term source of water supply. The 1989 demand of the City was about 6,000 acre-feet; 450 acre-feet of groundwater were pumped from wells completed in volcanics of the Sacramento Valley basin. In addition to groundwater, the City of Kingman has an available supply of 18,500 acre-feet per annum of Colorado River water under a valid and unused 1968 contract.

The Town of Chloride has been experiencing a severe water shortage and hauls water from Kingman to supplement their needs. Groundwater pumped from fractured granite in the area is insufficient to meet Chloride's needs, and repeatedly exceeds the maximum contaminant level established for radionuclides.

The principal aquifer receives most of its recharge by infiltration of runoff into the alluvium of the washes and along the mountain fronts. Gillespie and Bentley (1971) estimated that 4,000 acre-feet of water per year are recharged to the main aquifer. Surface discharge from the Sacramento Wash is estimated to be about 500 acre-feet per year (Gillespie and Bentley, 1971).